

Appl. No. 10/766,097  
Amendment dated June 8, 2005  
Reply to Office Action mailed April 13, 2005

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**REMARKS**

Reconsideration of the subject application is respectfully requested.

The claims of the subject application are directed to a countermeasure system and method for protecting aircraft from missile attack. For example, in claim 1, the system comprises a dispenser mounted on an aircraft and configured to dispense a substance into an area within an attack envelope of said aircraft, said substance emitting radiation in a first wavelength band when excited by incident radiation in a second wavelength band; and at least one exciter configured to generate illuminating radiation in said second wavelength band, and to direct said illuminating radiation toward said area. Preferred embodiments of the recited "substance" are described in paragraphs 56 through 76 of the subject application, for example.

Other claims of the subject application, for example claim 25, recite aspects regarding the detecting and/or tracking of the attacking missile. See Figures 1, 4 and 5, and paragraphs 35 through 44 of the subject application, for example.

Claims 1-54 are pending in the subject application. The independent claims are 1, 21, 25, 32, 34, 40, 42 and 49.

**Rejection of Claims 1-54: 35 U.S.C. 103(a) – Campillo et al (H1522) in view of Kirkpatrick (6,738,012):**

The Examiner has rejected claims 1-54 under 35 U.S.C. 103(a) as being unpatentable over Campillo *et al.* (H1522) in view of Kirkpatrick (6,738,012). Applicant respectfully traverses this rejection.

Applicant respectfully submits that this rejection should be withdrawn because Kirkpatrick is not prior art to the subject application. Kirkpatrick bears a filing date of May 2, 2003, and does not claim any earlier effective filing date. See, Kirkpatrick cover page, and column 1. On the other hand, the subject application claims priority in United States provisional application number 60/443,765, which has a filing date of January 29,

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2003. See, paragraph 1 of the subject application. Kirkpatrick's May 2, 2003 filing date clearly falls after the January 29, 2003 date to which the subject application is entitled, therefore Kirkpatrick is not prior art to the subject application. Kirkpatrick is therefore not available to supply the teachings that the Examiner has indicated Campillo *et al.* fails to show, namely – a "defense system being used to defend an aircraft or the particular sensor means for tracking the attacking missile." (Final Official Action, at 2.)

Applicant therefore respectfully submits that in the absence of a reference that discloses a "defense system being used to defend an aircraft or the particular sensor means for tracking the attacking missile," the Examiner has not properly supported his rejection of claims 1-54 under 35 U.S.C. 103(a).<sup>[1]</sup>

The Examiner's rejection should be withdrawn for a further reason: the embodiments disclosed in Campillo *et al.* employ mechanisms which are clearly different from the inventions of claims 1, 21, 34, and 40, and the claims dependent there from. In one embodiment, Campillo *et al.* teach the use of substances which operate through "photochemical reaction" or "exothermic reaction" to release chemical energy stored in the material, in order to generate the desired infrared source. See, Campillo *et al.*, at col. 3, line 3 through col. 5, line 6, for example. In independent claims 1, 21, 34, and 40 of the subject application, the recited substance emits radiation in a first wavelength band when excited by incident radiation in a second wavelength band. It is respectfully submitted that the claimed mechanism is different from the "photochemical reaction" or "exothermic reaction" mechanisms taught by Campillo *et al.*, because the excitation mechanism in the subject application does not cause a "photochemical reaction" or "exothermic reaction" to occur. A clear disadvantage of using substances which burn in order to release heat, such as taught in this embodiment of Campillo *et al.*, is that the substances themselves pose an additional hazard to the aircraft being protected to the extent such substances are dispensed from the aircraft and therefore

<sup>[1]</sup> Although Applicant does not agree with the Examiner's exact characterization of the particular claim features referred to in the quoted passage, Applicant has reproduced the quoted passage in order to make clear that whatever features the Examiner was relying on Kirkpatrick to provide, Kirkpatrick is not available as prior art which teaches such features.

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are a combustion source which must be carried on-board the aircraft. Another benefit of the claimed invention is that a continuous quantum fluorescent emission is provided in the first wavelength band as long as the radiation in the second wavelength band is incident. In comparison, in the first embodiment in Campillo *et al.* the material is rapidly consumed as a part of the "photochemical" or "exothermic" reaction.

The alternate embodiment described in Campillo *et al.* is even more different from the claimed invention. Specifically, the alternate embodiment uses substances which scatter incident light – that is without emitting light of a wavelength band different from the wavelength band of the incident light (as is recited in claims 1, 21, 34, and 40, and their dependent claims). See, Campillo *et al.*, col. 5, lines 7-12.

For at least the foregoing reasons, it is respectfully submitted that claims 1, 21, 34, and 40, and the claims dependent there from are further allowable over the prior art cited and relied upon by the Examiner.

### Features in other claims further distinguish Campillo *et al.*

There are other features recited in other claims of the subject application which distinguish Campillo *et al.* even further. For example, claims 3 and 35 recite that the substances comprises "nanocrystals." In contrast, particle sizes disclosed in Campillo *et al.* are, for example, 100  $\mu\text{m}$  (of iron). See, col. 4, line 45. Such a diameter is more than 10,000 times the typical 2 to 7 nanometer diameters of the nanocrystals disclosed in the subject specification, at paragraph 57, for example. Further, the physical and/or chemical properties being exploited of the substances disclosed in Campillo *et al.* ("photochemical reaction" or "exothermic reaction"; or light scattering) are of a clearly different character compared to the quantum fluorescence properties of the nanocrystals disclosed in the subject application, for example in paragraph 57.

Claims 7 and 28 recite that the exciter is "ground-based." The ship-based system of Campillo *et al.* is clearly not ground-based. Further, the Campillo *et al.* system is located in its entirety on the target (the ship) being protected, unlike the

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system of claims 7 and 28 in which the target is an aircraft, and the exciter is "ground-based."

**Conclusion**

For the foregoing reasons, it is respectfully submitted that claims 1-54 are allowable over the cited prior art and the Examiner's indication to that end is respectfully requested.


**Request for Interview**

Applicant believes that an Examiner Interview will be particularly helpful in moving the subject application toward allowance. Accordingly, Applicant and Applicants' Attorney hereby request an opportunity to interview the Examiner at the Examiner's convenience.

Respectfully submitted,  
DLA Piper Rudnick Gray Cary US LLP

Dated: June 8, 2005

By:



Gerald T. Sekimura  
Reg. No. 30,103  
Tel.: (415) 836-2500

Attn. Patent Department  
DLA Piper Rudnick Gray Cary US LLP  
153 Townsend Street, Suite 800  
San Francisco, CA 94107-1957